

EYE ON THE SKY

National Weather Service
Louisville, Kentucky

Fall/Winter 2004
Volume 5, Issue 2



**A Newsletter for Emergency
Managers, Core Storm Spotters,
Media and Public Officials in
Central Kentucky and
South-Central Indiana**

Comments and suggestions
are always welcome.
Your feedback is
very important to us!

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newsletter

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The Data Bank

by Don Kirkpatrick, Senior Meteorologist

Continuing with this issue, interesting and little known weather facts relevant to the ongoing or upcoming season are presented to you via The Data Bank. In this issue, we look back at the unusual winter of 1983/84 and the value of future winter outlooks.

As temperatures cool each autumn, weather prognosticators look ahead to the following season with their winter forecasts. It seems that everyone has a winter weather prediction, either scientifically or nature based. Folklore forecasts abound. Dire predictions of a cold and snowy winter (defined as December, January and February) are usually rampant; after all, a mild rainy outlook is boring.

Winters in the Lower Ohio Valley are anything but predictable. The winter of 1983/84 was one of the coldest on record, despite a warmer than normal February. Unseasonably cold weather arrived in December, which, for the central and eastern part of the U.S., was one of the coldest Decembers since records have been kept. The first half of the month was near normal, but by mid-month, the polar jet stream directed frigid air southward over the Prairie Provinces of Canada and eventually across the eastern two thirds of the United States. Because the frigid air was accompanied in some regions by wind gusts of 45 knots, some news reporters dubbed the arctic blast, the "Siberian Express".



Autumn in the Bluegrass, near Lexington
image courtesy Jeff Rogers

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By Christmas, temperatures had fallen to well below zero across central Kentucky and southern Indiana, as an enormous ridge of high pressure stretched from the Canadian arctic coast to the Gulf of Mexico. Record lows were observed in Louisville and Bowling Green (-7), as well as Lexington (-9). These records were part of 125 record cold readings set in twenty-four states. Winds gusting over 30 mph sent wind chill readings to near 40 below zero. The glacial temperatures occurred without a snow cover. In contrast, max temperatures from Christmas day the previous year were around 70.

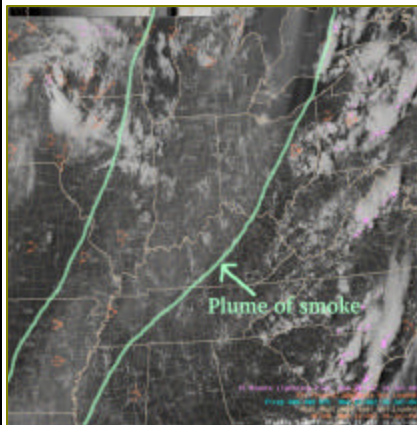
December monthly average temperatures for the area were in the upper 20s, some 9 degrees below normal, however; the cold air did not equate to above normal snowfall. Less than 1 inch was observed during the month over most areas.

...Continued on page 2...

NWS Louisville Tracks Smoke Plume

by Chris Smallcomb, Senior Meteorologist

During the middle part of July, a veil of smoke from destructive wildfires in northwestern Canada and Alaska made its way into the central and eastern United States. We couldn't smell it since the smoke was at a high altitude, but we could definitely see it using technology available to meteorologists that's normally used for diagnosing severe thunderstorms and subtle cloud patterns.



The smoke appeared as a light haze on NOAA/NWS satellite imagery the afternoon of July 19, seen in this image stretching from north of the Great Lakes southward into the lower Mississippi River valley. Again, this smoke was aloft, so it wasn't restricting visibilities at the surface, however several pilots in the air

at the time reported flight visibilities of less than ten miles due to the smoke.

Since there were no storms in the area that afternoon, the Louisville NEXRAD radar was operating in what is called "clear air mode", where the radar can detect fine



scale particles, such as dust and insects. Seen in this image, the radar depicted the smoke as a ring. This is because the radar scans in a cone shape, and when that intersects a horizontal layer of particles such as dust or smoke, it will produce a circle. In this fashion, the radar helped meteorologists estimate that the layer of smoke was centered around 14,000 feet above ground. What was also interesting was that the radar was simultaneously picking up typical summertime cumulus clouds, which can be seen inside the smoke ring, since the clouds were located at lower altitudes than the smoke layer.

The Data Bank...continued

By early January, the extreme cold had moderated with temps actually reaching the 60 degree mark on the 9th, however; the Siberian Express slammed back into our region on the 10th, driven by strong upper-level northerly winds.

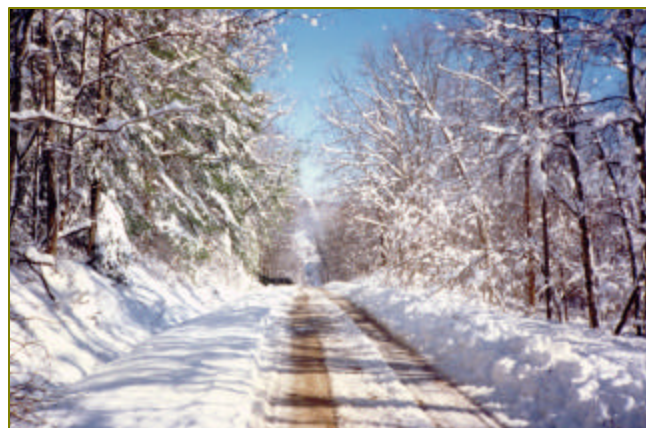
An arctic air mass dominated through the 23rd with temperatures approaching record levels again on the 21st, with readings near 10 below. Again, despite much colder than normal temperatures for the month, snowfall was somewhat below normal with less than 5 inch averages over the region.

February brought more surprises. After fluctuating temperatures the first third of the month, a heat wave engulfed most of the U.S. east of the Rocky Mountains. By the 12th, temperatures topped the 70 degree mark across the Ohio Valley, approaching record levels. The mild air mass continued until the end of the month when a Canadian front brought cold air and the first significant snow of the season over most of the area. Despite a much warmer than normal month, almost 9 inches of snow fell over Louisville.

In summary, the winter of 1983/84 went down in the record books as one of the coldest winters across the Lower Ohio Valley since reliable record keeping began in 1931. Less than normal snowfall

occurred in spite of the cold air. Little snowfall was observed in December (a near record cold month) while substantial snow transpired in a much warmer than normal February.

In summary, a cold winter will not necessarily bring a multitude of snow while a mild winter could produce large amounts. Various folklore forecasts from our local nature experts for this winter are a mixed bag for our region while the Farmers Almanac predicts a mild winter. The NWS current 2004/05 winter outlook calls for slightly below normal temperatures and below normal precipitation.



Snowy Road, Jasper, IN

image courtesy Mary Miller, Indiana Emergency Management Agency

2004 Summer Climate Summary

by John Denman, Meteorologist

The summer of 2004 will be remembered as cool, with adequate rain spread throughout June, July, and August. For the second summer in a row, temperatures averaged well below normal across southern Indiana and central Kentucky. Temperatures averaged from 2 to 3 degrees below normal for the three month period across the region.

The wettest month across our region by far was July. Frequent storminess during the early part of the month brought at least a trace of rainfall for 13 consecutive days at the NWS office in Louisville. July also brought the bulk of the summer's severe weather.



Louisville skyline—image courtesy Louisville CVB

On the afternoon and evening of July 13, a widespread derecho moved south across all of south-central Indiana and central Kentucky. Derecho is a Spanish word meaning "straight line". High instability, coupled with strong northerly winds aloft, brought a squall line that raced south at 50 mph. This line was accompanied by widespread wind gusts of 60 to 80 mph. Winds were measured at 64 and 74 mph at Standiford Field and Fort Knox respectively. A peak wind gust of 84 mph was recorded at the science building in Bowling Green. This derecho brought widespread damage to trees and power lines across our region. A wind event of this magnitude is only expected to hit our area once every one or two decades. More details on this event are in the severe weather review on page 4.

An anomalously deep trough persisted across the eastern states during much of the month of August. Repeated surges of Canadian air kept temperatures across Kentucky as much as 8 degrees below normal through the 20th of August. From the 11th to the 17th of August, Lexington had 7 straight days with high temperatures below 80 degrees. Overall, August became the 4th coldest on record for Louisville, Lexington, and Bowling Green.

Please see the climatological tables on page 5 for more details!

Winter Outlook—What Is El Niño/La Niña?

by Benjamin Schott, Meteorologist

The National Weather Service's Climate Prediction Center issued the latest winter weather outlook in mid-September (The next seasonal forecast will be issued October 21). El Niño will again be a factor for the upcoming winter season; those who love snow may be disappointed with the latest forecast (see attached table). How do El Niño and La Niña play a role in the forecast of the winter season?

El Niño and La Niña are both effects of changes in sea surface temperatures across the Equatorial Pacific. El Niño is characterized by unusually warm ocean temperatures, compared to La Niña which is characterized by usually cold ocean temperatures. Both can have drastic effects on the weather across the Ohio and Tennessee River valleys, as well as globally. Where did they get their names? How do they form? How do they affect our area? How do we forecast their changes? Well, let's start from the beginning, and discuss things one at a time.

Month	Temperature	Precipitation
November	Normal	Below
December	Normal	Below
January	Normal/ Slightly Below	Below
February	Normal/ Slightly Below	Below
March	Normal	Below

The name El Niño (by translation means "the Christ child") was originally given by Peruvian fishermen to a warm ocean current that appeared each year around Christmas. What we now call El Niño seemed to them like a stronger event of the same type, and the usage of the term changed to refer only to the irregular strong events. It wasn't until the 1960s that it was widely realized that this was not just a local occurrence in coastal Peru, but was associated with changes over the entire tropical Pacific and beyond. La Niña means The Little Girl. La Niña is sometimes called El Viejo, anti-El Niño, or simply "a cold event" or "a cold episode".

...Continued on page 7...

Spring & Summer Severe Weather Review

by James Brotherton, Meteorologist

March and April typically are busy severe weather months across southern Indiana and central Kentucky. However, the past spring showed both of these months to be very quiet. The tide changed dramatically, however, in late May. Meteorologists at NWS Louisville quickly discovered severe weather season was upon them on May 27, when a major tornado outbreak took place across the region. The area again experienced two more major severe weather outbreaks on May 30 and July 13.

MAY 27, 2004

With a very moist low level atmosphere combined with strong low level veering winds (winds turning right with height) and a warm front located just north of the region, the atmosphere was conducive to supercell thunderstorm development. Most unusual about this evening was a lack of scattered thunderstorm development at the onset of the event, which can be common in this part of the country. Rather, the activity started with only a few (very isolated) thunderstorm cells over southern Indiana and northwest Kentucky.

The first supercell thunderstorm that eventually affected the Louisville CWFA (County Warning & Forecast Area) initiated in southwest Indiana and produced wind damage and large hail in the late afternoon. The storm eventually split, with a right moving storm that dropped into Orange County, IN, near Paoli, before it began to exhibit tornadic signatures on the Louisville Doppler radar. Storm damage survey teams determined the tornado first reached the ground near Organ Springs in western Washington County, IN. The

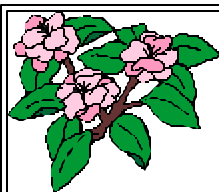
tornado reached its maximum intensity of F2 in western Clark County, near the town of Borden. The track of the tornado had an estimated length of 7 miles, ending near Charlestown, IN. The storm continued across the Ohio River into Oldham County, KY, where straight-line wind damage occurred and large hail was reported. The storm then continued northeast into northern Kentucky. Another storm split off, however, and produced a tornado with F2 damage at Eminence, KY, in Henry County. Later that evening, a thunderstorm cell merged with a bow-echo thunderstorm segment which in-turn created a short-lived but powerful tornado with F3 damage in western Fayette County, KY, within the borders of the city of Lexington. Another storm, a small supercell thunderstorm separate from the main group of larger supercells, produced a small F1 tornado in eastern Harrison and western Floyd Counties, IN.

May 30, 2004

Only three days later, another major tornado outbreak occurred over portions of the Louisville CWFA. This event was again quite unusual, because of the large number of supercell thunderstorms, yet it was also very different from the May 27 outbreak since these supercell thunderstorms were very small, and basically "all over the map". It was also a rare event since there were a large proportion of supercell thunderstorms, and a large number of those supercells contained tornadic circulations. Remember, only a small proportion of supercell thunderstorms typically produce tornadoes.

...Continued on Page 10...

Latest Staff Changes & Farewells

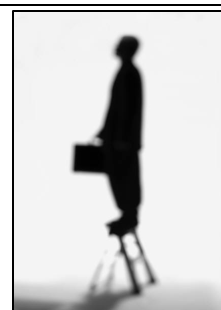


The big news for this column is Meteorologist-in-Charge at NWS Louisville, Kim Pye, has departed for greener pastures in Maryland at NWS Headquarters. Kim will be overseeing the national program of training and verification in Silver Spring, MD. The staff at NWS Louisville was sorry to see Kim leave. We have all greatly appreciated the last two years with her at the helm, and wish her happiness and success in her new position!

In other news, NWS Louisville recently acquired two new staff members. First to arrive was our first Information Technology Officer since the position was created nationwide only a few years ago. Tony Freeman arrived in Louisville in May, coming from the Regional Headquarters of the U.S. Forest Service in Milwaukee.

Tony has already been busy helping to make our many different computer and technology-related programs work more smoothly. Most recently to arrive was Tom Reaugh, our new lead forecaster. Tom previously worked at the Northern Indiana NWS office. In addition to his experience as a forecaster across the grasslands and lake country of northern Indiana, Tom brings extensive skill in outreach and internet design ideas to this office.

NWS Louisville welcomes all the new additions to our staff. We look forward to sharing our high level of teamwork, creativity, and good spirit with our new staff members!



Climatological Calendar

Observed Temperatures and Precipitation: Spring/Summer 2004

Location	Month	Average Temperature	Departure From Normal	Total Precipitation	Departure From Normal	Highest Temp (Date)	Lowest Temp (Date)
Louisville (NWS)	Mar	49.0	2.1	4.80	0.39	81 (28th)	23 (12th)
	Apr	56.6	0.2	5.49	1.58	84 (18th)	32 (14th)
	May	69.7	0	10.66 (3rd wettest)	5.78	87 (8th)	37 (4th)
	Jun	73.1	-1.1	3.75	-0.01	89 (11th)	54 (20th)
	Jul	74.5	-3.9	7.42	3.12	91 (13th)	56 (20th)
	Aug	72.1	-4.9	4.14	0.73	92 (19th)	52 (14th)
Lexington	Mar	47.8	2.2	4.31	-0.10	79 (28th)	22 (22nd)
	Apr	55.0	0.4	3.74	0.07	81 (18th)	28 (5th)
	May	68.8	5.0	10.91 (all-time wettest)	6.13	85 (9th)	35 (4th)
	Jun	71.4	-0.8	5.05	0.47	86 (16th)	48 (5th)
	Jul	73.2	-2.9	8.68	3.87	88 (13th)	54 (28th)
	Aug	70.6	-4.2	4.06	0.29	89 (19th)	49 (13th)
Bowling Green	Mar	50.6	2.8	4.03	-0.94	80 (28th)	24 (10th)
	Apr	57.3	0	5.67	1.68	83 (18th)	31 (5th)
	May	70.7	4.9	8.27	2.91	88 (30th)	37 (4th)
	Jun	73.9	-0.5	3.83	-0.46	90 (11th)	55 (27th)
	Jul	75.7	-2.8	5.46	0.92	92 (13th)	54 (28th)
	Aug	72.2	-4.6	4.53	1.17	91 (27th)	49 (14th)

Normal High/Low Temperatures

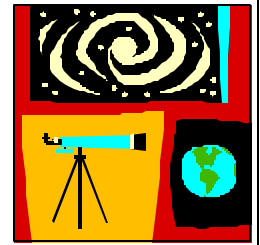
Record Monthly High/Low Temperatures

Location	Oct 1	Nov 1	Dec 1	Jan 1	Feb 1	Mar 1	Oct	Nov	Dec	Jan	Feb	Mar
Louisville (NWS)	74/55	62/43	50/34	42/26	43/26	51/32	92 (1959) 23 (1952)	84 (1958) -1 (1950)	76 (1982) -15 (1989)	79 (1943) -22 (1994)	78 (1932) -19 (1951)	88 (1929) -1 (1960)
Lexington	73/52	60/41	49/33	41/25	41/25	50/32	93 (1941) 20 (1976)	82 (1987) -3 (1950)	75 (1982) -19 (1989)	80 (1943) -20 (1994)	80 (1996) -20 (1899)	86 (1929) -4 (1873)
Bowling Green	76/52	63/41	52/33	44/26	45/26	53/32	94 (1930) 17 (1887)	88 (1909) -7 (1950)	78 (1982) -14 (1989)	78 (1943) -26 (1886)	83 (1918) -20 (1951)	92 (1929) -6 (1960)

Upcoming Fall and Winter Astronomical Sights

by Chris Smallcomb, Senior Meteorologist

The autumn and early winter seasons can offer rewarding viewing opportunities for astronomy enthusiasts in the Ohio and Tennessee River Valleys, due to lesser average amounts of clouds, precipitation, and humidity compared to other times of year.




Meteorologically, the fall season begins on September 1; however in the astronomical community autumn will begin this year at 12:30 PM EDT on Wednesday, September 22. On this date, the length of daylight and nighttime are roughly the same (12 hours). The sun is getting lower and lower in the sky, and around this time of year, we're loosing about 3 minutes of daylight each day.

A total lunar eclipse will grace our skies during the evening hours of Wednesday, October 27. This phenomenon occurs when the moon is obscured from the sun by Earth, allowing the moon to darken considerably. Depending on a varying amount of dust or other particles at high altitude, the color of the eclipsed moon can range from a feathery grey to mysterious oranges and reds. The entire total eclipse will be visible in an area bounded by much of North and South America eastward to western parts of Europe and Africa. Places like China and Australia will not see any of the eclipse because, of course, it will be daylight there when the eclipse process occurs.

As we draw closer to the winter solstice, which occurs at 7:42 AM EST on December 21, the Geminid meteor shower may put on a show. This shower is generally considered second to the summertime Perseids in terms of the number of meteors produced. The peak of the Geminids is expected during the evening hours of Monday, December 13.

Don't forget to set your clock back one hour on October 31 (unless you live in parts of Indiana!). Daylight Savings Time (DST) officially ends at 2:00 AM on October 31 this year. DST originates from the Standard Time Act, set into U.S. law on March 19, 1918. However, the law was repealed in 1919 and allowed local governments to enact it individually. The Uniform Time Act of 1966 provided standardization of DST, but still allowed for a few local exemptions, namely for much of the states of Indiana, Arizona, and Hawaii.

Astronomical Calendar

Sunrise and Sunset							
	Louisville		Lexington		Bowling Green		Times are given in EST (Eastern Standard Time) and CST (Central Standard Time), as appropriate.
Date	Sunrise	Sunset	Sunrise	Sunset	Sunrise	Sunset	
Oct 1	639 am edt	625 pm edt	634 am edt	620 pm edt	541 am cdt	529 pm cdt	
Nov 1	710 am est	543 pm est	704 am est	538 pm est	610 am cst	448 pm cst	
Dec 1	741 am est	523 pm est	736 am est	518 pm est	641 am cst	429 pm cst	
Jan 1	800 am est	533 pm est	754 am est	529 pm est	659 am cst	440 pm cst	
Feb 1	748 am est	605 pm est	743 am est	600 pm est	649 am cst	510 pm cst	
Mar 1	714 am est	637 pm est	709 am est	632 pm est	616 am cst	540 pm cst	
Moon Phases					The Winter Solstice begins December 21 at 7:42 AM EST		
New Moon	First Quarter	Full Moon	Last Quarter				
Oct 14	Oct 20	Oct 28	Nov 5				
Nov 12	Nov 19	Nov 26	Dec 5				
Dec 12	Dec 18	Dec 26	Jan 3				
Jan 10	Jan 17	Jan 25	Feb 2				
Feb 8	Feb 16	Feb 24	Mar 3				
Mar 10	Mar 17	Mar 25	Apr 2				
						Lexington skyline—image courtesy Jeff Rogers	

Quick CWFA Facts

by Tom Reaugh, Senior Meteorologist

As a recent arrival to the area, I figured it would be interesting to compile a few facts on the "county warning & forecast area" (CWFA) for the Louisville NWS office. So, here goes...

59 counties (49 in Kentucky, 10 in Indiana)
19 counties observe CDT and CST
33 counties observe EDT and EST
7 counties observe only EST

Total land area: 19,552 square miles (Largest CONUS CWFA: Las Vegas, NV, with 81,000 square miles...about the size of Kansas)

Repeating counties within Louisville CWFA: Washington, Clark, Scott, Jefferson, Harrison

Largest county: Hardin, 628 square miles
Smallest county: Floyd, 148 square miles

Total population: 2,593,176 (all populations from 2003 U.S. Census estimates)

Most populous county: Jefferson KY, 699,017
Least populous county: Nicholas KY, 6,937

Most densely populated county: Jefferson KY, 1,816 people per square mile
Least densely populated county: Cumberland KY, 23 people per square mile

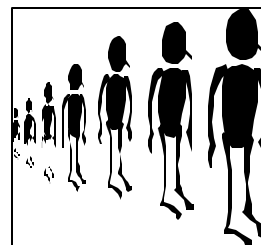
Ten Largest Cities (population):

Louisville KY	699017
Lexington KY	266798
Bowling Green KY	50226
New Albany IN	37529
Richmond KY	28093
Jeffersonville IN	27822
Frankfort KY	27660
Jeffersontown KY	26156
Elizabethtown KY	23080
Radcliff KY	21978

Ten Smallest Towns (population):

New Amsterdam IN*	1	Harrison Co IN
Laconia IN	29	Harrison Co IN
Alton IN	54	Crawford Co IN
Fairfield KY	73	Nelson Co KY
Brooksbury IN	73	Jefferson Co IN
New Middletown IN	76	Harrison Co IN
Mauckport IN	83	Harrison Co IN
Woodbury KY	86	Butler Co KY
Fredericksburg IN	92	Washington Co IN
Smithfield KY	101	Henry Co KY

*New Amsterdam is one of only 4 places in the U.S. with a population of 1. The others are Hibberts, Maine; Ervings, New Hampshire; and Lost Springs, Wyoming. New Amsterdam had a population of 31 in 1980, 30 in 1990, and 1 in 2000. There were 15 households in 1980, nine in 1990, and 1 in 2000. The town of New Amsterdam was founded in 1815.



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Twenty Minutes of Fame

by Mike Callahan, Hydrologist

Kentucky Educational Television (KET) made a "digital video field trip" of the Louisville NWS office last spring. During the program, you are walked through the forecast area, the radio room, the computer room, the tornado shelter, and outside by the rain gauge. Even though the program is only 20 minutes long, it took 2 days of taping and many days of editing. The host of the program is Mike Callahan, Service Hydrologist. Also seen on the program are Kim Pye, Meteorologist in Charge; James Brotherton, Forecaster; Tony Sturey, Lead Forecaster; Ted Funk, Science & Operations Officer; Norman Reitmeyer, Warning Coordination Meteorologist; Mark Schweitzer, Electronics Technician; and Larry Dattilo, Data Acquisition Manager. Watch for it on your local KET station!

NWS-WFO Louisville



Winter Outlook...continued

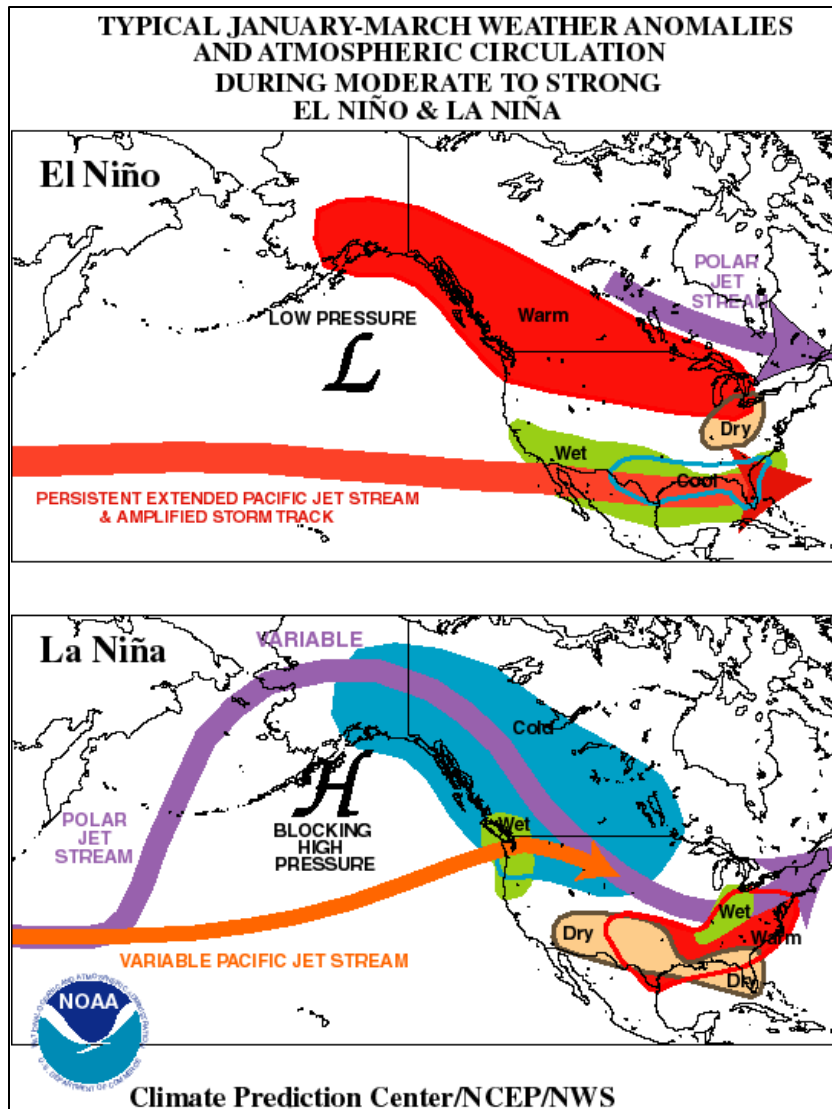
El Niño results from interaction between the near-surface layers of the ocean and the overlying layers of the atmosphere in the tropical Pacific. It is the internal dynamics of the coupled ocean-atmosphere system that determine the onset and termination of El Niño events. The physical processes are complicated, but they involve unstable air-sea interaction and planetary scale oceanic waves. The system oscillates between warm (El Niño) to neutral, or cold (La Niña) conditions with a natural periodicity of roughly 3-4 years.

El Niño and La Niña's usually occur irregularly, approximately every two to seven years. Recent significant El Niño years of 1976-1977, 1982-1983, 1986-1987, 1991-1994, 1997-1998 are all distinguished by large warm sea surface temperature anomalies (difference from normal); with recent La Niña years of 1971, 1974, 1976, 1989, 1999 distinguished by large cool sea surface temperature anomalies. The first half of the 1990s was unusual in that the four consecutive years were all unusually warm in the equatorial Pacific. El Niño typically lasts 9-12 months, and La Niña typically lasts 1-3 years. They both tend to develop during March-June, reach peak intensity during December-April, and then weaken during May-July. However, prolonged El Niño episodes have lasted 2 years and even as long as 3-4 years.

During winter El Niño episodes (top map), features include a strong jet stream and storm track across the southern part of the United States, and less storminess and milder-than-average conditions across the North. La Niña episodes (bottom map) feature a very wave-like jet stream flow over the United States and Canada, with colder and stormier than average conditions across the North, and warmer and less stormy conditions across the South.

Scientists from NOAA and other agencies use a variety of tools and techniques to monitor and forecast changes in the Pacific Ocean and the impact of those changes on global weather patterns. In the tropical Pacific Ocean, El Niño is detected by many methods, including satellites, moored buoys, drifting buoys, sea level analysis, and expendable buoys. Many of these ocean observing systems were part of the Tropical Ocean Global Atmosphere (TOGA) program, and are now evolving into an operational El Niño/Southern Oscillation (ENSO) observing system. NOAA also operates a research ship, the KA'IMIMOANA, which is dedicated to servicing the Tropical Ocean Atmosphere (TAD) buoy network component of the observing system.

Large computer models of the global ocean and atmosphere, such as those at NOAA's National Centers for Environmental Prediction, part of the National Weather Service, use data from the ENSO observing system as input to predict El Niño. Other models are used for El Niño research, such as those at NOAA's Geophysical Fluid Dynamics Laboratory and other non-governmental research institutions.



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Cooperative Observer and Spotter News

by Larry Dattilo, Data Acquisition Program Manager

NWS Louisville wishes to welcome our newest cooperative observers

-Mr. Vic McConnell, Marrowbone, KY, Cumberland County. Vic is a retired airline and military pilot. Vic is reporting daily temperatures, precipitation and pressure to NWS Louisville.

-Mr. Mark Whitehouse, Mt. Washington, KY, Bullitt County. Mark works at the Ford Plant in Louisville, and is reporting temperatures and precipitation

-Mr. J.Q. Rodgers, Phil, KY, Casey County. J.Q. is a retired Marine that served his country in WWII, and is a retired insurance salesman. J.Q. is reporting temperatures and precipitation.

On a sadder note, we wish to say goodbye to some of our "family members" that have retired from taking observations...we wish them the best in their new retirement!

-Mr. John Cory, Mundfordville, KY, Hart County. John has taken observations since 1993.

-Mr. Dan Draper, Adairville, KY, Logan County. Dan started taking observations in 2003, but for health reasons, he has decided on an early "retirement".

Upcoming Spotter Training Season

Spotter training season will be upon us soon. Typically, NWS Louisville begins training weather spotters in February, well before the severe weather season begins. If you would like information about scheduling a spotter class at your location, please contact Norm Reitmeyer, Warning Coordination Meteorologist, at (502)969-8842. You can also find additional information about the SKYWARN weather spotter program, and contact us online, at <http://www.crh.noaa.gov/lmk/skywarn.htm>



Quick CWFA Facts...continued

Famous people from the Louisville CWFA:

George Clooney – Lexington, Kentucky ...actor

Jim Varney – Lexington, Kentucky ...actor ("Ernest" movies, such as Ernest Goes to Camp)

Mary Todd Lincoln – Lexington, Kentucky ...First Lady of the United States

John Cabell Breckinridge – Lexington, Kentucky ...Vice President under James Buchanan

Annie Potts – Franklin, Kentucky ...actress (Designing Women, Ghost Busters, Pretty in Pink)

Diane Sawyer – Glasgow, Kentucky ...journalist (60 Minutes)

Abraham Lincoln – Hodgenville, Kentucky ...President of the United States

Carry Nation – Garrard County, Kentucky ...reformer during prohibition

...and from Louisville (just a partial list of the best-known people):

Irene Dunne ...actress, five Academy Award nominations

Muhammad Ali (Cassius Clay) ...heavyweight boxing champion

Ned Beatty ...actor (Deliverance, Silver Streak, Superman, TV's Roseanne, Academy Award nomination for Network)

Foster Brooks ...actor, comedian

Lance Burton ...magician

William Conrad ...actor (Cannon, Jake and the Fat Man), in Radio Hall of Fame

Joan Osborne ...pop musician

Lionel Hampton ...jazz musician

Tom Kennedy ...game show host

Victor Mature ...actor

Rags Ragland ...comedian

David Schramm ...actor (Roy Biggins on Wings)

Hunter S. Thompson ...author (Gonzo)

Gus Van Sant ...director (Good Will Hunting)

Telma Hopkins ...actress (Gimme A Break!, Family Matters)

Amanda Randolph ...actress (Louise on Make Room for Daddy for 10 seasons)

Mary Travers ...singer (Mary of Peter, Paul, and Mary)

Sean Young ...actress (Stripes, Blade Runner, Dune, Ace Ventura: Pet Detective)

Mildred J. Hill ...songwriter (Happy Birthday to You)

Richard Mentor Johnson (Beargrass, Kentucky at the time of his birth) ...Vice President under Martin Van Buren

Severe Weather Review...continued

During the afternoon of May 30, numerous thunderstorms developed during the heat of the day. The storm cells were arranged in a manner that would suggest poor organization. However, the ingredients for tornado-producing supercells were present, with favorable layered-wind shear, very strong low-level instability producing powerful updrafts, and favorable moisture levels, especially in the lower layers of the atmosphere.

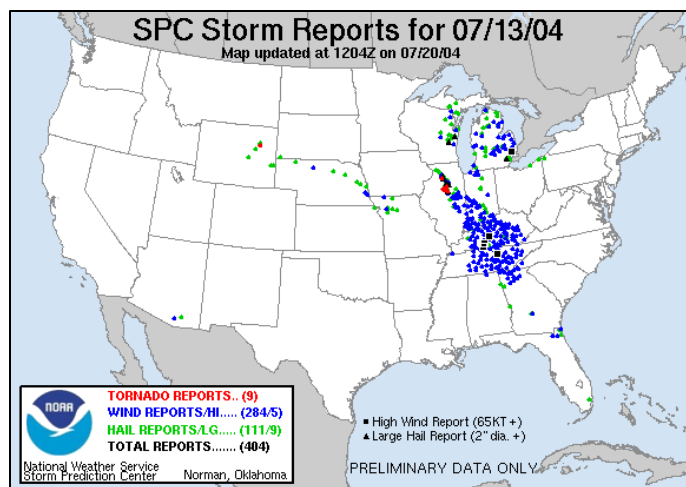
By the early evening of May 30, 4 tornadoes of at least F1 magnitude occurred in a swath across southern Indiana and north-central Kentucky. The strongest of these was a F3 tornado in Marengo, IN. The town of Marengo experienced severe tornado damage. Unfortunately, one person lost their life to the tornado. It was reported that some people sought shelter in the historic Marengo Cave from the tornado, which traveled very nearly over the cave. Extensive damage can still be seen near the entrance to Marengo Cave.

July 13, 2004

On July 13 a small cluster of supercell thunderstorms developed across far northwest Indiana and northeast Illinois. This cluster of storms accelerated very rapidly southeast (moving more than 60 mph at times) and evolved into a major derecho event. Widespread wind damage occurred across nearly all of southern Indiana and

central Kentucky. Wind gusts to 80 mph accompanied the derecho at times. The origins and development are uniquely depicted in the Storm Prediction Center's daily summary map below. This event is also covered extensively in the climate review article on page 3.

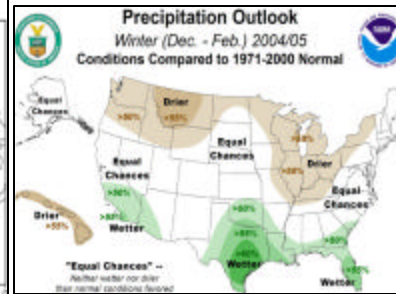
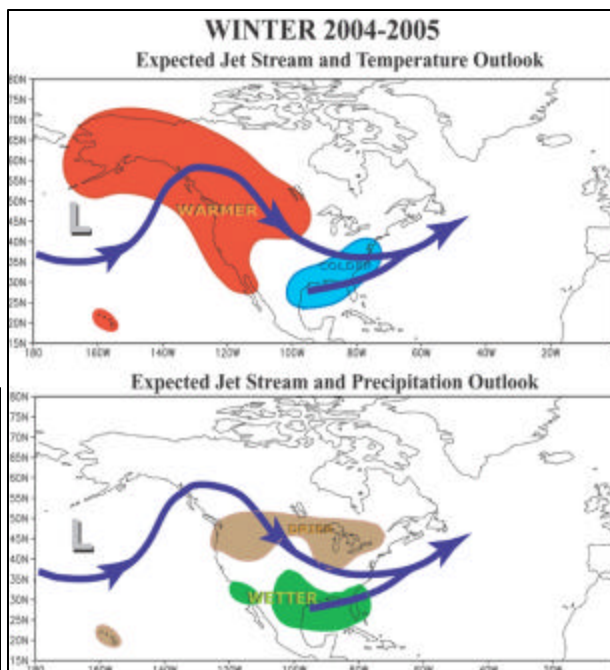
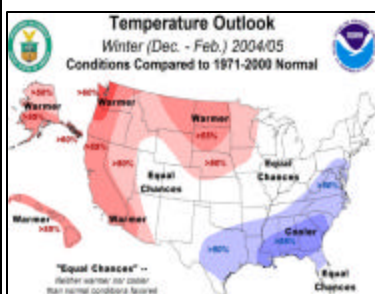
These three major severe weather outbreaks were only a small piece to a very active season for the region. Many records were broken across the country for the number of tornadoes on any given day and the number of severe weather warnings issued. Some citizens of area communities remarked that this was surely one of the most active severe weather seasons in their memory.



Winter Outlook...continued

Current El Niño forecasts for this winter are for a weak-moderate El Niño to continue through the fall and into spring of next year. The most likely scenario for regions of wintertime storminess will be across the Aleutian region of Alaska and across the southeast U.S. (see jet stream images at right). For southern Indiana and central Kentucky, the winter forecast is for near to slightly below normal

temperatures and below normal precipitation during the upcoming winter season (see images below). Most models show that El Niño will weaken in the middle of 2005 bringing a neutral (or normal) pattern of weather conditions. More extensive details about El Niño can be found at: http://www.cpc.ncep.noaa.gov/products/analysis_monitoring/lanina/



Winter Weather Definitions and Safety Tips

Information provided by the NWS Office of Climate, Water, and Weather Services, Silver Spring, MD

Winter Storm Warning: Issued when hazardous winter weather in the form of heavy snow, heavy freezing rain, or heavy sleet is imminent or occurring. Winter Storm Warnings are usually issued 12 to 24 hours before the event is expected to begin.

Winter Storm Watch: Alerts the public to the possibility of a blizzard, heavy snow, heavy freezing rain, or heavy sleet. Winter Storm Watches are usually issued 12 to 48 hours before the beginning of a Winter Storm.

Blizzard Warning: Issued for sustained or gusty winds of 35 mph or more, and falling or blowing snow creating visibilities at or below $\frac{1}{4}$ mile; these conditions should persist for at least three hours.

Wind Chill Warning: Issued when wind chill temperatures are expected to be hazardous to life within several minutes of exposure.

Winter Weather Advisories: Issued for accumulations of snow, freezing rain, freezing drizzle, and sleet which will cause significant inconveniences and, if caution is not exercised, could lead to life-threatening situations.

Dense Fog Advisory: Issued when fog will reduce visibility to $\frac{1}{4}$ mile or less over a widespread area.

Snow Flurries: Light snow falling for short durations. No accumulation or light dusting is all that is expected.

Snow Showers: Snow falling at varying intensities for brief periods of time. Some accumulation is possible.



Get ready for Winter Weather Awareness Week! It will be held the week of November 15 in both Kentucky and Indiana.

Blowing Snow: Wind-driven snow that reduces visibility and causes drifting. Blowing snow may be snow that is falling and/or loose snow on the ground picked up by the wind.

Sleet: Rain drops that freeze into ice pellets before reaching the ground. Sleet usually bounces when hitting a surface and does not stick to objects. However, it can accumulate like snow and cause a hazard to motorists.

Freezing Rain: Rain that falls onto a surface with a temperature below freezing. This causes it to freeze to surfaces, such as trees, cars, and roads, forming a coating or glaze of ice. Even small accumulations of ice can cause a significant hazard.

What is wind chill temperature?

The wind chill temperature is how cold people and animals feel when outside. Wind chill is based on the rate of heat loss from exposed skin caused by wind and cold. As the wind increases, it draws heat from the body, driving down skin temperature and eventually the internal body temperature. Therefore, the wind makes it FEEL much colder.

Can wind chill impact my car's radiator or exposed water pipe?

The only effect wind chill has on inanimate objects, such as car radiators and water pipes, is to shorten the amount of time for the object to cool. The inanimate object will not cool below the actual air temperature.

What is FROSTBITE?

You have frostbite when your body tissue freezes. The most susceptible parts of the body are fingers, toes, ear lobes, or the tip of the nose. Symptoms include a loss of feeling in the extremity and a white or pale appearance. Get Medical attention immediately for frostbite. The area should be SLOWLY re-warmed.

What is HYPOTHERMIA?

Hypothermia occurs when body temperature falls below 95 degrees Fahrenheit. Determine this by taking your temperature.

Warning signs include uncontrollable shivering, memory loss, disorientation, incoherence, slurred speech, drowsiness, and exhaustion. Get medical attention immediately. If you can't get help quickly, begin warming the body SLOWLY. Warm the body core first, NOT the extremities. Do not give the person alcohol, drugs, coffee, or any HOT beverage or food. WARM broth and food is better.

Tips on How to Dress during cold weather

The best way to avoid hypothermia and frostbite is to stay warm and dry indoors. When you must go outside, dress appropriately. Wear several layers of loose-fitting, lightweight, warm clothing. Trapped air between the layers will insulate you. Remove layers to avoid sweating and subsequent chill. Wear a hat, because half of your body heat can be lost from your head. Cover your mouth to protect your lungs from extreme cold.

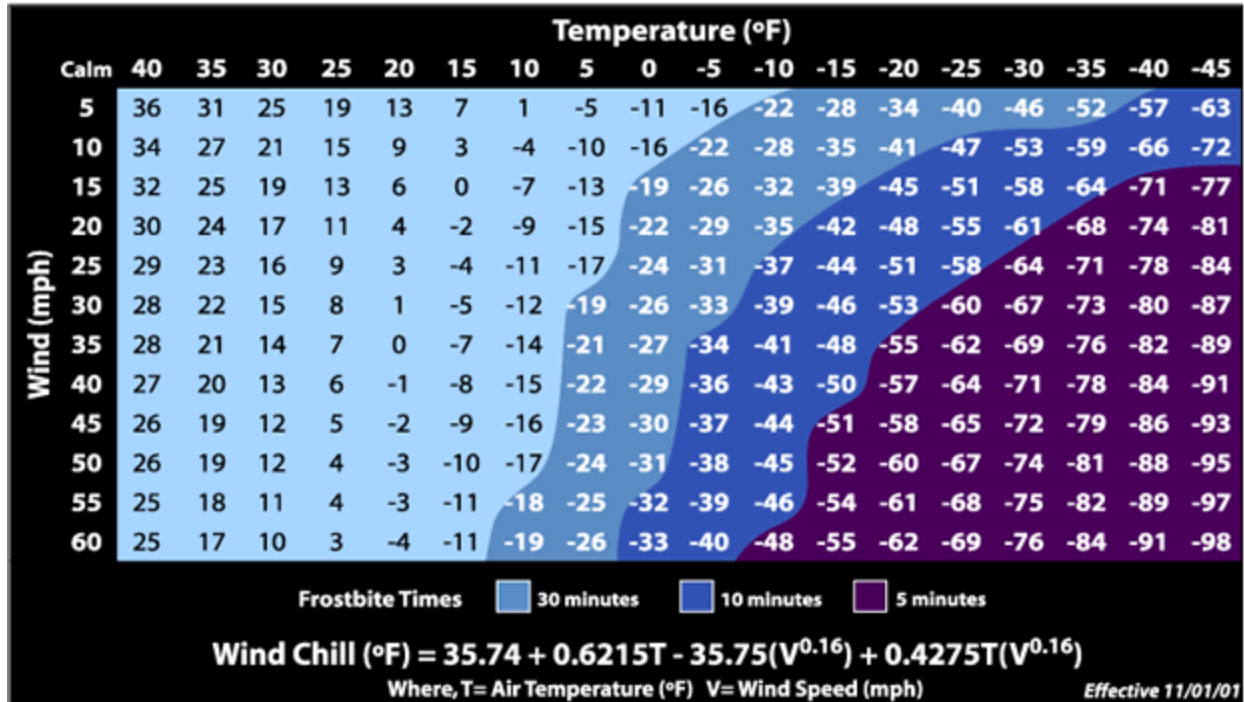
Avoid Overexertion

Your heart is already working overtime in cold weather. The strain from the cold and the hard labor of shoveling heavy snow, walking through drifts or pushing a car may cause a heart attack.

...Please see the Wind Chill Chart opposite mailing page...



Wind Chill Chart



UNITED STATES OF AMERICA OFFICIAL BUSINESS

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6201 THEILER LANE
LOUISVILLE, KY 40229-1476



Mail to: